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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,518	08/18/2003	Rinze Benedictus	APV31645	1585
24257	7590	03/27/2006	EXAMINER	
<b>STEVENS DAVIS MILLER &amp; MOSHER, LLP</b> 1615 L STREET, NW SUITE 850 WASHINGTON, DC 20036				MORILLO, JANELL COMBS
		ART UNIT		PAPER NUMBER
		1742		

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/642,518	BENEDICTUS ET AL.	
Examiner	Art Unit		
Janelle Combs-Morillo	1742		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 03 January 2006.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 23-34,38-50,52 and 53 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 23-34,38-50,52 and 53 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date .  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 3, 2006 has been entered.

### ***Claim Objections***

2. Claims 23-34, 38-50, 52, 53 are objected to because of the following informalities: it is unclear the meaning of "substantially Mn-free" (the specification mentions a multiplicity of maximums including <0.1, <0.3, etc.). Claims dependent on independent claim 23 are likewise objected to. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 23-30, 32-34, 38, 40-50, 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rioja et al (US 6,562,154 B1).

Rioja teaches a process of casting, working, and heat treating an Al-Cu alloy comprising (in weight%): 3.4-4.0% Cu, 1.0-1.6% Mg, 0-0.4% Mn 0.09-0.12% Zr, up to 1% Si, up to 1% Fe

(column 5 lines 5-7, 16-18, Rioja at claim 6), which overlaps the presently claimed alloying ranges of Cu, Mg, Si, Fe, Mn, and Zr (cl. 23, 38, 40-45). Rioja teaches that Zr forms dispersoids (column 5 lines 25, 32) with help control grain growth and recrystallization. Rioja teaches example 770-308 in Table 1 with: 3.74% Cu, 0% Mn, 1.36% Mg, 0.12% Zr, 0% Sc, 0.03% Fe, 0.04% Si, balance Al, which falls within the presently claimed alloying ranges of Cu, Mn, Mg, Zr, Fe. Rioja teaches said process comprises: DC casting, homogenizing, preheating, hot rolling, reheating, finish hot rolling, optional cold rolling, optional intermediate anneals during hot or cold rolling, annealing, solution heat treating, quenching, stretching <6% (column 6 lines 58-60), cold rolling, and naturally aging (Examples, column 6 lines 9-14) to a T3 type temper (col. 7 line 12).

Because Rioja teaches a substantially similar process of casting, working, and heat treating an overlapping alloy, then it is held that Rioja has created a *prima facie* case of obviousness of the presently claimed invention. Overlapping ranges have been held to be a *prima facie* case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility.

Concerning claims 24-29, as stated above, Rioja teaches a process substantially as presently claimed. Concerning claims 26 and 28, which mention naturally aging for a certain period of days, the examiner submits that aging is a result effective variable, wherein the expected result is degree of precipitation hardening. Changes in temperature, concentrations, or other process conditions of an old process does not impart patentability unless the recited ranges

are critical, i.e. they produce a new and unexpected result. However, said parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977), See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Concerning claim 30, Rioja teaches said alloy is in the form of a rolled product typically 0.01-0.25 in thick (0.25-8.89mm, column 4 lines 9-10).

Concerning claims 32 and 33, Rioja teaches said alloy is used for aircraft fuselages (abstract, column 2 lines 18-19).

Concerning claim 34, it would have been obvious to one of ordinary skill in the art to form the alloy taught by Rioja into a lower-wing member, because Rioja teaches said alloy is suitable for aircraft structural parts such as fuselage components.

Concerning claims 46-49, which mention various properties such as TS, YS, fatigue crack growth resistance, because Rioja teaches a process of casting, working, and heat treating substantially as presently claimed, wherein said process is performed on an alloy within the presently claimed alloying ranges, then substantially the same properties are expected to be inherently present. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655,

1658 (Fed. Cir. 1990). Because Rioja teaches substantially similar processing steps performed on an alloy that falls within the instant alloying ranges, it is held that the same properties would be expected to be present.

5. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rioja as applied to claim 23 above, and further in view of “Metals Handbook Desk Edition” p 445-446.

Concerning claim 31, Rioja does not mention rolling said alloy is formed into thick sheets. However, “Metals Handbook Desk Edition”, teaches that similar 2024 type Al-Cu alloys can be formed into sheet 0.15-6.3 mm thick or plate 6.3-200mm thick (“Metals Handbook Desk Edition” p 445, 3<sup>rd</sup> column) depending on the application (see p 446). It would have been obvious to one of ordinary skill in the art to form the alloy taught by Rioja into thick sections, within the presently claimed 25-50mm, because “Metals Handbook Desk Edition” teaches that substantially similar 2024 alloys are formed into thick plate used for aircraft structures where high strength is required (“Metals Handbook Desk Edition” p 445).

6. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rioja and Dif et al (US 2004/0079455A1).

Rioja is discussed in paragraphs above. Rioja does not teach a method of casting, heat treating, and working an aluminum alloy with 4.3-4.5% Cu. However, Dif teaches that Al-Cu-Mg- alloys that are substantially Mn-free and contain 3.6-4.5% Cu (see [0007]) exhibits a good compromise between strength and toughness (see [0008]). It would have been obvious to one of ordinary skill in the art to have 3.6-4.5% Cu for the process of casting, heat treating, and working an aluminum alloy taught by Rioja because Dif teaches said added Cu achieves excellent mechanical properties (see page 1 of specification).

***Response to Amendment***

7. In the response filed on January 3, 2006 applicant amended claim 23, and added new claims 52 and 53. The examiner agrees that no new matter has been added.
8. The examiner agrees applicant has shown unexpected results with regard to AA2024 and AA2524, and said alloys are a reasonable substitute for comparison with Heymes ex. A4 (see esp. arguments p 8-9), wherein Heymes teaches at column 6 lines 6-7 that ex. A4 is an alloy of the 2024 type. However, the instant claims are rejected over Rioja as stated above, who teaches a substantially similar process of casting, working, and heat treating an Al-Cu-Mg alloy that overlaps the presently claimed ranges.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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3/17/2006